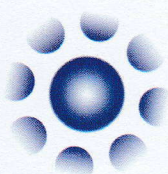


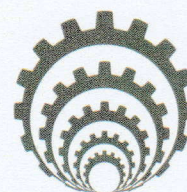
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**FACULTY OF MECHANICAL ENGINEERING
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ABSTRACTS



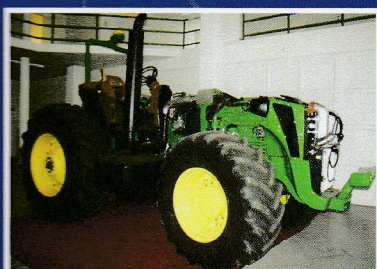
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COMBINATION OF ULTRASONICATION AND ULTRAFILTRATION FOR DAIRY WASTEWATER TREATMENT

Sz. Kertész*, I. Kovács, C. Hodúr, G. Keszthelyi-Szabó, Zs. László

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Keywords: dairy wastewater; pretreatment; ultrasound; ultrafiltration (UF); membrane fouling, contact angle

Abstract

Novel wastewater treatment is necessary to effectively decrease the organic load of dairy wastewater before disposal [1]. In this work the feasibility of ultrasonication and ultrafiltration processes were combined. The efficiency of the single ultrafiltration and ultrasonic irradiation as pretreatment processes followed by pressure-driven membrane ultrafiltration, as well as the efficiency of the advanced hybrid process were tested. Ultrasound irradiation generates a number of physical forces, what can be generated by the alternating compression and rarefaction cycles, like vibration and physical agitation [2]. The purification of dairy wastewater was investigated. Different nominal molecular weight limit and type of ultrafiltration membranes were used. Conductivity, turbidity and chemical oxygen demand membrane retentions and membrane, gel-layer and inner porous fouling resistances were analyzed and compared in single and combined processes. Furthermore, to understand the fouling mechanisms in depth, the influence of the membrane fouling on the contact angle results was also investigated.

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